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CofC

Practitioner's Docket No. 57715/03-507 *PATENT*

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent Number: 7,188,450
Issued: 03/13/2007
Name of Patentee: Raun, et al.

Title of Invention: "Use of Within-field-element-size CV for Improved Nutrient Fertilization in Crop Production"

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

ATTENTION: Decision and Certificate of Correction
Branch of the Patent Issue Division

REQUEST FOR CERTIFICATE OF CORRECTION OF PATENT FOR PTO MISTAKE (37 C.F.R. § 1.322(a))

1. It is noted that an error appears in this patent of a clerical nature or character, as more fully described below. A certificate of correction is requested.

2. Attached hereto, in duplicate, is Form PTO/SB/44, with at least one copy being suitable for printing.

3. The error occurs in the patent in column 12, line 54. Line 54 should read --adjusted response index of--. It appears that the error is due to a PTO printing mistake. The correct wording is shown in the amendment mailed May 15, 2006 (see claim 6), and allowed by the Examiner in the Notice of Allowance dated February 21, 2007.

4. Please send the Certificate to:

R. Alan Weeks
Fellers, Snider, Blankenship, Bailey & Tippens, P.C.
321 S. Boston Ave., Suite 800
Tulsa, OK 74103-3318

5. It is believed that no fee is due for this Certificate of Correction. If, however, a fee is determined to be due, please charge the fee to Deposit Account 06-0540.

A duplicate of this request is attached.

Respectfully submitted,

Date: 4/9/07

R. Alan Weeks
Fellers, Snider, Blankenship, Bailey & Tippens, P.C.
321 South Boston, Ste. 800
Tulsa, OK 74103-3318

#396681 v1

APR 16 2007

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APR 16 2007

PTO/SB/44 (04-05)
Approved for use through 04/30/2007. OMB 0651-0033
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

(Also Form PTO-1050)

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 7,188,450

APPLICATION NO. : 10/801,757

ISSUE DATE : 03/13/2007

INVENTOR(S) : Raun, et al.

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

1. Col. 12, line 54 the words "adjusted response per PTO query response index of" should read --adjusted response index of--

MAILING ADDRESS OF SENDER(Please do not use customer number below):
R. Alan Weeks
Fellers Snider, et al.
321 South Boston, Ste. 800
Tulsa, OK 74103

PTO/SB/44 (04-05)
Approved for use through 04/30/2007. OMB 0651-0033
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.
(Also Form PTO-1050)

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 7,188,450

APPLICATION NO. : 10/801,757

ISSUE DATE : 03/13/2007

INVENTOR(S) : Raun, et al.

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MAILING ADDRESS OF SENDER(Please do not use customer number below):
R. Alan Weeks
Fellers Snider, et al.
321 South Boston, Ste. 800
Tulsa, OK 74103

Notice of Allowability

Application No.	Applicant(s)	
10/801,757	RAUN ET AL.	
Examiner	**Art Unit**	
Jeffrey L. Gellner	3643	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *amendment received 19 May 2006*.

2. ☒ The allowed claim(s) is/are *1-9*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____.
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.:	10/801,757
Applicant:	Raun et al.
Filed:	03/16/2004
Title:	USE OF WITHIN-FIELD-ELEMENT-SIZE CV FOR IMPROVED NUTRIENT FERTILIZATION IN CROP PRODUCTION

Confirmation No.:	3433	Customer No.:	22206
Examiner:	Gellner, Jeffrey L.	TC/A.U.:	3643

Mail Stop Amendment
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT

Dear Sir:

Introductory Comments

This paper is submitted in response to the Office Action mailed February 14, 2006.

CERTIFICATION UNDER 37 C.F.R. § 1.8(a)

I hereby certify that, on the date shown below, this correspondence is being deposited with the United States Postal Service in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450 with sufficient postage as first class mail by Amy C. Walker.

Date: May 15, 2006 A C. Walker

It is understood this paper is filed within the deadline set for response, however, please consider this paper to constitute a One Month Petition for Extension of Time should such be required. If any additional extension of time fee, or other fee is required by virtue of the filing of this paper, please consider this a general authorization to charge Deposit Account No. 06-0540 for the same; likewise instructions hold for any refunds or credits.

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method for in-season nutrient application to a crop including the steps of:

(a) determining a maximum potential crop yield for a field;

(b) determining a nutrient response index for a field;

(c) determining a reference coefficient of variation for the nutrient response index;

(d) measuring a normalized difference vegetation index for a plot within said field;

(e) determining a coefficient of variation within said plot;

(f) determining a predicted yield for said plot;

(g) determining an attainable plot yield with added nutrient as a function of said predicted yield, said nutrient response index, and said reference coefficient of variation;

(h) determining the nutrient removal at said predicted ~~crop~~ plot yield;

(i) determining the nutrient removal at said attainable plot yield;

(j) determining the amount of additional nutrient which must be supplied to achieve said attainable ~~crop~~ plot yield; and

(k) applying said amount of nutrient to said plot.

2. (Original) The method for in-season nutrient application to a crop of claim 1 wherein step (b) includes the substeps of:

(b) determining a nutrient response index for a field by performing the steps of:

(i) providing a first area treated with the nutrient such that said first area is a non-limiting fertilized area;

(ii) providing a second area treated with a predetermined amount of the nutrient;

(iii) determining a normalized difference vegetation index for said first area;

(iv) determining a normalized difference vegetation index for said second area; and

(v) dividing said normalized difference vegetation index for said first area by said normalized difference vegetation index for said second

area.

3. (Currently Amended) The method for in-season nutrient application to a crop of claim 1 wherein step (d) includes the substeps of:

(d) determining the normalized difference vegetation index for a plot within said field by performing the steps of:

(i) scanning said plot with a ~~with a~~ reflectance sensor, said reflectance sensor sensing reflectance at red light and at near infrared light;

(ii) determining the reflectance of the vegetation in said plot to red light;

(iii) determining the reflectance of the vegetation in said plot to near infrared light; and

(iv) dividing the difference of the reflectance determined in step ~~(d)(ii)~~ (d)(iii) minus the reflectance determined in step ~~(d)(iii)~~ (d)(ii) by the sum of the reflectance determined in step (d)(ii) and ~~he~~ the reflectance determined in step (d)(iii).

4. (Original) The method for in-season nutrient application to a crop of claim 3 wherein step (e) includes the substeps of:

(e) determining a coefficient of variation within said plot by performing the steps of:

(i) performing steps (d)(i) through (d)(iv) successively over said plot;

(ii) calculating the standard deviation of the normalized difference vegetation index of said plot;

(iii) calculating the mean of the normalized difference vegetation index of said plot; and

(iv) calculating the coefficient of variation of the normalized difference vegetation index for said plot.

5. (Original) The method for in-season nutrient application to a crop of claim 1 wherein step (f) includes the substeps of:

(f) determining a predicted yield for said plot by performing the steps of;

(i) determining the number of growing days since the planting of the crop;

(ii) calculating an in-season estimated yield index for said plot by dividing said normalized difference vegetation index measured in

step (d) by said number of growing days determined in step (f)(i); and

(iii) calculating the predicted crop yield for said plot as a function of the in-season estimated yield index for said area.

6. (Original) The method for in-season nutrient application to a crop of claim 1 wherein step (g) includes the substeps of:

(g) determining an attainable yield by performing the steps of:

(i) adjusting the response index of step (b) as a function of the coefficient of variation of step (e); and

(ii) multiplying the predicted yield of step (f) times the adjusted response index of step (g)(i);

7. (Original) The method for in-season nutrient application to a crop of claim 1 wherein said nutrient is nitrogen.

8. (Original) The method of claim 1 wherein the coefficient of variation determined in step (e) is the coefficient of variation of the normalized difference vegetation

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index measured in step (d).

9. (Original) The method of claim 1 wherein the coefficient of variation determined in step (e) is the coefficient of variation of plant height of plants within said plot.

10-28. (Canceled)